

The N-GAGE logo is centered in the upper half of the page. The 'N' is red, and the rest of the letters are white. The background features a dark, grid-like pattern that recedes into the distance, creating a sense of depth. A horizontal band of red and white lines cuts across the middle of the page, adding a dynamic, technological feel.

N·GAGE

Handheld revolution

Everything you need to know about the Nokia N-Gage game deck

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D-pad. Nokia's 'rocker' controller is a small but perfectly formed digital direction pad, which can be pressed in to provide an extra fire button (or as a quick way to surf through game menus). It's responsive and smooth, and can handle eight-way movement – a vital element for serious gaming.

Audio entertainment. N-Gage can handle MP3 and AAC sound files that can be downloaded from your PC to blank MMCs. The game deck comes complete with Audio Manager software and a USB cable, making music transfer very simple. N-Gage also has a stereo FM receiver. You can listen to all this via the headphones – also supplied when you purchase the hardware.

Hi-res screen. Measures 176 x 208 pixels and boasts 4096 colours. Developers report good game performance with little blurring and impressive refresh. The backlight keeps the screen bright, wherever you're playing.

Keypad. Designed so that the layout curves toward the screen – this makes using multiple buttons during gaming much more comfortable. '5' and '7' are the main game buttons – they're raised for easy access. The rest can be used in-game, too.

N-Gage specs – at a glance

Games

Design: optimised for gaming.

Multiplayer: Nokia N-Gage game deck devices support Bluetooth connection and network multiplayer over GPRS.

Software: portfolio of high-quality branded games from known developers and publishers

Media: games sold on game cards (MMC) enabling richer graphics and content than with downloadable games

Off-line gaming: off-line profile allows you to play games with the GSM transceiver turned off

Games playtime: up to 3-6 hours (depending on game type)

Music

Music player: plays AAC and MP3 files

Music recorder: AAC recording from integrated radio or analogue stereo line-in connector

Radio: FM stereo radio, automatic channel seek, 20 memory locations

PC Software: Nokia Audio Manager for music file and playlist management

PC requirements: Windows 98, Windows ME or Windows 2000 professional, Windows XP, USB port.

Music usage time: up to 8 hours*

Radio playtime: up to 20 hours*

*At maximum with no other function on

Phone Features

Bandwidth: Tri-band operation EGSM 900/GSM 1800/GSM 1900

Talk time: up to 2-4 hours

Standby time: up to 150-200 hours

User interface: Nokia Series 60 graphical user interface with 5-way navigation plus music and radio shortcut keys and highlighted game keys

Messaging: MMS, E-mail (SMTP, POP3, IMAP4), enhanced SMS (multiple SMS sending, SMS concatenation, templates, smileys and picture messages messaging)*

*Messaging features are dependent on the network as well as on the compatibility of devices used and content formats supported

Personal information management: calendar, to-do list, internal phone book

Voice features: voice dialling (up to 20 names and numbers), voice recorder, integrated hands free speaker

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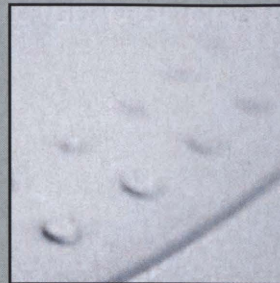
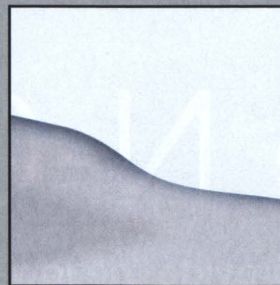
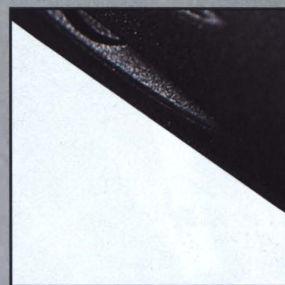
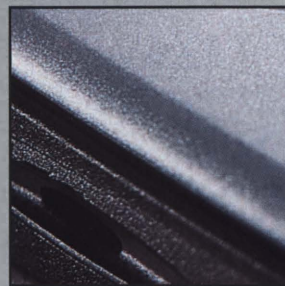
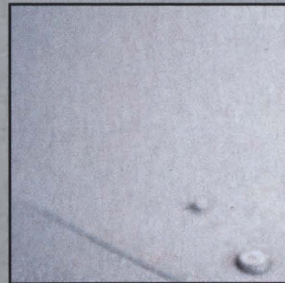


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Nokia is no newcomer to games. *Snake* – released in 1997 – went on to become a global obsession, with over 100 million players – surely putting it up there with the most widely experienced titles in electronic entertainment history. And that was just a black line travelling around a grey screen.

Fast forward six years and Nokia is ready to revolutionise the mobile entertainment market once again. N-Gage is a completely new kind of device – a fully-featured gaming console, with powerful processor, big screen and wireless multiplayer capabilities. Forget tiny Java downloads, N-Gage games are delivered on eight, 16 or even 32 meg MMCs (factoring in the latest data compression techniques these cards are already handling game data files of around 40megs). And you can still slide it comfortably into your back pocket.

Here, then, is a complete guide to Nokia's game deck, covering the hardware, the games and the exciting online possibilities. *Snake* is ancient history. This is where mobile gaming gets serious.



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Virtua Tennis
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Inside N-Gage

The key developers provide the low-down on Nokia's cutting edge handheld hardware.

For veteran gamers used to waiting years between first hearing about a new piece of gaming hardware and actually getting their hands on it, things have moved pretty quickly for N-Gage. The game deck was initially announced in November of last year and shown off to the world's press for the first time in February. It will be released worldwide in October, less than a year after that opening announcement. Not that it's been rushed through the development mill – N-Gage is the culmination of around three year's research and development undertaken at Nokia's Finnish design centre. The aim was to use all the incoming mobile entertainment features – Bluetooth, GPRS, colour screens, etc – to create the ultimate portable gaming device. And here's the result.



The Design

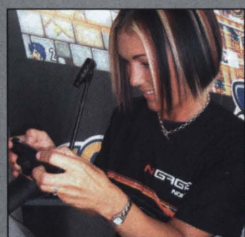
Standard mobile phones aren't designed for games. Everything about them, from the case to the keypad, to the menu system, is created with one-handed use in mind. Fine for making calls and texting, but often trying to control your fighter craft with the d-pad while firing with a '5' button placed directly below it is the fingers and thumbs equivalent of spaghetti junction.

In contrast, N-Gage – and this is vitally important – is a games console before *everything* else. Consequently, Nokia has gone for the gaming-friendly layout favoured since the Atari Lynx – d-pad on left of screen, fire-buttons on the right – providing a familiar two-handed, joystick feel. It's a lot smaller than the Lynx of course, and at 137g is lighter and more petite than the original GBA.

Size matters, but in this case functionality hasn't been sacrificed in favour of portability. The direction pad, or rocker switch, is small but ridged to allow ease of movement, and like the analogue sticks on the PS2 Dual Shock, can be pressed in to provide another fire button.

N-Gage on tour

In August, Nokia packed up a couple of trucks and set off on a tour of Europe, covering 50 cities in 16 countries. The idea is to get N-Gage into peoples' hands, allowing them to experience the games and wireless connectivity before launch. There's also a continental gaming challenge going on with a final set to take place in Paris. This is only the beginning of an expected multi-media marketing onslaught.



The fact that it supports eight-way movement is a minor revolution – most phones only cater for four directions, which seriously hampers game performance.

There are two prominent gaming buttons – '5' and '7' – raised from the rest for ease of use, and strengthened for all the pounding they'll get. If needed, however, almost all the other keys can be employed in-game as well. *Tomb Raider*, for example, uses most of them.

And, of course, you get a big hi-res screen with a powerful backlight, 4096 colours and a super-fast refresh rate. In short, N-Gage boasts a sleek, multi-faceted design, maintaining its roots as a communication device, but providing enough ergonomic enhancements to keep gamers more than happy. But the really interesting stuff is going on inside...

N-Gage uncovered

Beneath the casing, N-Gage is based around Nokia's Series 60 architecture, the company's most advanced handheld technology. The basic components – common to all Series 60 devices – are the 104mhz ARM processor, 176x208 pixel screen and Symbian operating system. The one vital difference is that N-Gage has twice the memory of other Series 60 handsets – 16meg – and 3.4Mb of flash memory boosting graphics performance.

N-Gage games are generally written in C++, using Nokia's Series 60 SDK. For most developers it's a more familiar process than writing Java apps. J2ME provides a kind of hermetically sealed environment with no access to the hardware. With N-Gage, coders can program straight to the metal, enjoying direct access to the processor as well as GPRS and Bluetooth functions. One important factor: there's no specialist hardware for graphics calculation, so visual effects are handled in software. Essentially, it's like coding a PC game in the days before graphics accelerator cards.

Is this a hindrance? Adrian Blunt, senior Symbian software engineer at Kuju Entertainment (currently working on several N-Gage projects) doesn't think so: 'It's true that N-Gage doesn't have any graphics acceleration, but this is compensated for by the powerful processor. There's no floating point co-processor on board, but it flies with integer-based math. We don't have exact comparison figures between the N-Gage and GBA, but we have written a 2D platform engine that would happily run at 120-130 fps were it not for the display refresh rate keeping it down to 60 fps. Plus, having up to 8Mb of runtime memory seems a luxury compared to the GBA.'

N-Gage is also capable of impressive 3D performance, with developers like Ideaworks3D, Fathammar and Gameloft already producing fast 3D engines for the device. The Ideaworks3D engine, named Segundo3D, is

N-Gage connections

A Nokia console was never going to be about playing games alone. From web browsing to multiplayer gaming here are the wireless connectivity options offered by N-Gage.

N-Gage Arena

This is Nokia's online community – a fascinating mobile equivalent of Gamespy Arcade. Accessible via GPRS connection, the service currently offers Time Trial challenges, hints and cheats, but could go on to provide downloadable levels, characters and weapons, and eventually a full lobby service for multiplayer gaming. Three launch titles – *Tony Hawk's*, *Tomb Raider* and *Pandemonium* – will support the service immediately with more to follow. Each of these offers a Nokia Arena option on the main menu. Select it, and the phone searches for the nearest server – a process that should take no longer than 15 seconds. The service is global so you'll be able to hook up with gamers all over the world. Nokia expects local, national and international highscore tables and competitions to spring up.

Although the service will be free for a limited period (excluding actual download costs, which are billed by the network operator), Nokia and other game publishers will one day be able to charge for content.

Bluetooth

Several forthcoming titles support this wireless multiplayer technology, including *Red Faction*, *Virtua Tennis*, *Tony Hawk's Pro Skater*, *Rayman 3* and *MotoGP*. 'It is possible to engage up to four players in a level mission over Bluetooth' confirms Philippe Laurens at Gameloft, 'While testing this option we have never encountered any problems, testifying to the N-Gage's wireless connectivity strengths'. Kevin Holloway at Kuju adds, 'Using Bluetooth in a game does have an impact on speed. The underlying networking layer on the device tends to suck a bit of horsepower from the game, but we have still managed to maintain 20-25 frames per second on a 4-way game'. Expect Bluetooth multiplayer support to become a standard feature.

XHTML browsing

As with all of Nokia's current high-end handsets, N-Gage comes with a micro-browser that supports XHTML – or Extensible Hypertext Markup Language. This is a 'cleaned-up' version of HTML; the programming language behind the worldwide web, and it's especially suited to wireless surfing, offering a better, more colourful browsing experience than WAP.

SNAP

In August, Nokia acquired the intellectual property of Sega.com a specialist network entertainment division of the Japanese videogame giant. Crucially, this means Nokia now owns the Sega Network Application Package, a high-performance online multiplayer gaming platform that will be built into N-Gage Arena, providing a robust basis for Nokia's over-the-air multiplayer plans. The suite has tools to assist in pretty much every element of providing an online gaming service – from server management and billing systems to developer middleware and tech support. Sega has previously used SNAP to provide the online infrastructure for PS2 and Gamecube titles like *Phantasy Star Online* and *NFL 2K3*. Nokia is likely to license this useful back-end technology out to developers, publishers and network operators, thereby accelerating the whole process of providing and maintaining real-time online games on N-Gage.

MMCs fit inside N-Gage, slotting beside the battery and the SIM.



Glossary



MMC

Stands for multimedia card – the storage medium supported by N-Gage. MMCs come in various memory capacities from 8meg right up to 512meg, and can be found inside various portable devices including digital cameras and music players. N-Gage games will come on write-protected cards so you can't record music or video footage over them accidentally.

GPRS

GPRS – or General Packet Radio Service – is the main method of wireless Internet connection used by most current handsets in the UK, apart from 3G models on the Three network. Unlike WAP, GPRS doesn't tie up your phone line – it can run in the background while you make and receive calls. In this sense it's more like broadband, and clever coding should allow N-Gage developers to offer real-time multi-player games eventually.

Bluetooth

Bluetooth is a short-range wireless connectivity technology that allows devices such as mobiles, laptops and PDAs to communicate with each other over distances of up to 10 meters. The standard was originally invented by Ericsson in 1994 but is now promoted by the Bluetooth Special Interest Group, which consists of companies such as Nokia, IBM, Microsoft, Motorola and, of course, Ericsson. Bluetooth gets its name from Harald Bluetooth, the 10th century Danish king who conquered Norway and unified the two countries.

Java

When used in conjunction with mobile phones, this actually refers to J2ME, the mobile version of Sun Microsystems's Java platform. Java provides a self-contained environment for developing various apps – including games – which can then be ported across multiple devices. Files are usually restricted to around 50-100k, and games performance is rather basic.

the powerhouse behind the *Tomb Raider* and *Tony Hawk's* conversions. CEO Adrian Sack sees resurrecting the art of software rendering – pretty much abandoned by PC developers since the introduction of 3D graphics cards – as a fascinating venture. 'We picked up the unfinished work of guys like John Carmack who left behind some great theories about what might be possible with software rendering, were the technology ever to be pushed to its theoretical limits. *Tony Hawk's Pro Skater* is probably the most graphically demanding title in the N-Gage launch catalogue, but thanks to Segundo3D runs at a consistent 25fps during even the most complex levels'.

Comparing N-Gage performance to other platforms throws up some interesting figures. As Sack continues, 'The N-Gage's CPU (104mhz) runs at around six times

the clock speed of the GBA's (16mhz). As a result, the N-Gage's 3D performance largely depends on the speed of a given game's 3D engine and software rasterizer. In ballpark terms, I would say that combining the N-Gage with Segundo3D gives us, perhaps 75-80% of a PSone's 3D rendering performance to play with.'

But of course, these figures only provide half the story. Unlike other platforms, N-Gage's phone and its range of communications services have to be managed by the CPU while a game is running. GBA developers don't have to worry about calls and photo messages arriving in the middle of the action. N-Gage developers do. And juggling processor cycles between these various functions is becoming one of the real arts of N-Gage coding. Most games will just pause and show an incoming call or message display. Perhaps one day,

the game character will stop and take a phone out of their pocket to indicate you have a call waiting...

Elsewhere, one factor that's aroused plenty of interest and debate is the N-Gage screen. There's little doubting the quality of the hi-res display – powerful backlight, sharp colours, decent refresh rate ('it is one of the best screens on the current range of mobile devices,' says Kevin Holloway at Kuju). What some are unsure of is the portrait-style aspect ratio – when most console gamers and developers are used to widescreen.

Philippe L  rens, project manager at Gameloft, is aware of the controversy, but having overseen the company's first 3D mobile game, *Ghost Recon* (due out next year), is dismissive of concerns. 'The aspect ratio is a far lesser problem than first thought. Generally speaking, a landscape display better accommodates the human eye's field of view. However certain game types actually benefit from the N-Gage display ratio. Typically, jump-and-run games work equally well on portrait or landscape displays, but games such as *Siberian Strike* or *Space Invaders* benefit from a portrait video display ratio. In the end the challenge resides with the creativity of the designer to address these issues'.

N-Gage: The future

So how attractive is N-Gage development to the industry? The current crop of supporters including EA, Sega, THQ and Activision is a promising sign, and Nokia is in discussion with other major potential partners. Importantly, the game deck represents a whole new business model for videogame publishers with the



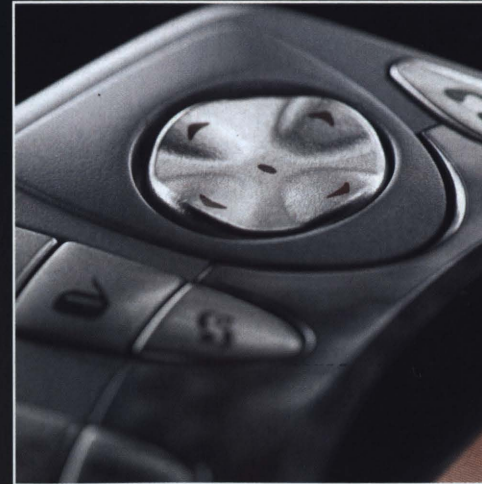
From the left, *Tomb Raider*, *Sonic the Hedgehog* and *Tony Hawk's Pro Skater* are among the top videogame franchises coming to N-Gage. Original titles are planned for the future – many of which will no doubt make use of the wireless connectivity options.



N-Gage can be hooked up to a PC via USB, allowing you to share music files and align your address books, etc.



The '5' and '7' keys are the main gaming buttons. They are raised above the rest for easy access.



The d-pad has a textured surface offering better movement. Pressing the pad gives access to another action button.

potential to reach a much wider demographic than traditional games consoles. And of course, Nokia talked about shifting 'many millions' of units at its February press conference in London – always an attractive proposition to game publishers.

So, certainly, we can expect to see N-Gage slotting neatly into forthcoming cross-platform release schedules, with many of the big videogame brands appearing on the device. Although that's hardly the extent of what N-Gage has to offer. This is a unique platform, don't forget, with singular capabilities for online gaming and community building. At the moment, developers are just

gaming; 'persistent network connections will allow players to invite game session partners or adversaries by connecting to a far larger community accessible through a telephone network connection into a dedicated multi-player service. Such features will then quickly lead to the larger experiences of championships with local, national and international leagues'.

At first we'll see simple two-player puzzle and board games supporting online play. As the underlying technology improves, Kevin Holloway, Wireless Publishing Director at Kuju hopes for more adventurous options. 'N-Gage may open the market up to developing original

coders and artists – hardly a million pound proposition. Plus, Nokia has made its N-Gage SDK available online for free, together with a dedicated development website (www.forum.nokia.com). The company is making big noises about supporting independent small-scale development – the 'two guys in a garage inventing the next *Doom*' scenario.

And if there is to be a new *Doom* or *Tetris*, N-Gage will probably be where it happens – away from the entrenched restraints of the traditional videogame industry. Here, everything is new. The rules are changing, boundaries are shifting. No one knows what is possible.

'We picked up the unfinished work of guys like John Carmack who left behind some great theories on software rendering'

beginning to consider the possibilities of across-the-air multiplayer via GPRS. Later, Nokia's purchase of the versatile SNAP technology from Sega.com, should mean the infrastructure is there to support a range of ambitious multiplayer projects.

Developers have their own ideas how this will play out. Philippe Laurens at Gameloft reckons Bluetooth will, 'make accessible to everyone, with minimal technical end-user barriers, the pleasure of team-based games and in-game challenges'. He goes on to consider online

titles that will really take advantage of the mobile orientation of the device. I would love to see games accessing massively multiplayer environments.'

Imagine the likes of *Phantasy Star Online* or *Star Wars Galaxies* on a handheld, with you all the time, sending you text messages when you're not in the game world informing you of major events. Bang, there's goes your life. There are infinite possibilities, and publishers should be able to take the risk on brave new concepts – N-Gage dev times are around a year with a handful of

Audio-Visual

Although N-Gage has been conceived primarily as a gaming platform, it does have other entertainment functions. Each handset ships with a CD-ROM containing a piece of software called Audio Manager. Install this on your PC, hook up N-Gage via USB, and Audio Manager will essentially treat the handset like a Memory Stick, allowing you to download MP3 and AAC files either to a blank memory card (the device supports 32, 64 or 128Mb iterations) or to the

internal memory – a decent 3.4 megs. As usual, you can either download the files from the net or upload them from your CD player, and the software will manage the whole process.

N-Gage also has a RealOne player on board, making it possible to stream or download short video clips from the Internet. Network operators like Vodafone and O2 now provide RealOne video on their entertainment portals. Then, there's a built-in Stereo FM receiver, and

you can listen to it while playing a game. Of course, you may want to give the in-game soundtrack a chance: sound quality is surprisingly good, and the external speakers are much louder than on other portable gaming devices such as GBA. The skate punk tunes accompanying *Tony Hawk's* are a head-nodding treat (if you like that sort of thing) rather than a muffled dirge. N-Gage ships with headphones if those around you fail to appreciate the music.

MINI FAQ

How much will N-Gage cost?

The indications are that we will see N-Gage available from as little as £99.99 with a mobile phone network contract, or around £220 sim free. Games will sell for between £24.99 and £34.99 and it's likely that there will be two price points, with less feature-rich budget titles at the lower end and major titles, often with online functionality, closer to the £34.99 mark.

Where will I be able to buy N-Gage games?

Both the game deck and the games will be available through a wide range of highstreet retailers and videogame chains, as well as mobile phone stores and network operator outlets.

Does my mobile phone network support N-Gage?

The phone functionality of N-Gage is the same as all other Nokia phones and so should work with your existing SIM card. To use the GPRS functions, your SIM will need to be GPRS-enabled.

Does N-Gage support Java?

Yes, you will be able to download Java games to N-Gage from all the usual independent, mobile phone manufacturer and network portals.



interview

Adrian Sack

Having developed the technology behind N-Gage Arena, and converted *Tomb Raider*, *Pandemonium* and *Tony Hawk's Pro Skater* to N-Gage, Ideaworks3D is one of Nokia's key partners in the run up to the N-Gage launch. Here, CEO Adrian Sack explains his company's achievements and what they mean to the future of wireless gaming.



Ideaworks3D is one of the original third-party developers for N-Gage. How did your relationship with Nokia come about?

Ideaworks3D has been developing 'wireless console gaming' technology since 1998. We met with Nokia many times between 1999 and 2002 and demonstrated our games and the progress we were making with our technologies, Segundo3D and Airplay. By early 2001 we'd begun working closely with many of the major mobile handset manufacturers on gaming related R&D projects and every now and then we'd be shown a prototype device that had 'wireless gaming device' written all over it. We worked on device after device that ended up being cancelled, long before coming close to market.

Then in October of last year our head of Strategic Marketing, Thor Gunnarsson was attending what we assumed would be another routine meeting with Nokia in Finland. I was at a telecoms industry conference in Vegas at the time and it was around 2.30 in the morning when the call came into my hotel room that Nokia was developing a dedicated mobile gaming device.

From that point onwards things moved pretty quickly, Segundo3D and Airplay were selected as the lead technologies that Nokia would use to announce and demonstrate the N-Gage. The game chosen by Nokia for the N-Gage's public announcement, was Eidos' *Pandemonium*, a title we'd ported to the platform using Segundo3D in a record 11 days to meet the announcement of the N-Gage at Nokia's yearly corporate summit, the Nokia Mobile Internet Conference. A month after Thor's initial meeting in Helsinki, I was in Munich at the event, watching Anssi Vanjoki (the head of Nokia's Mobile phones division) announcing the N-Gage to the world's press with the words, 'Let's now take a look at what the future of mobile gaming is going to look like...'

Could you tell us about Airplay?

Airplay is a multiplayer wireless games server together with a wide array of supporting technologies developed over the last four years in collaboration with several of

the world's leading handset manufacturers and network operators. The system was designed to be the most feature-rich, high performance and bandwidth-efficient wireless gaming technology in the world. Airplay has been licensed by Nokia to function as the back-end server infrastructure for the launch of N-Gage Arena.

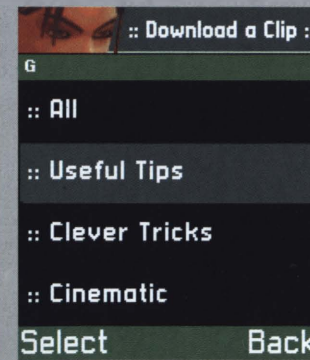
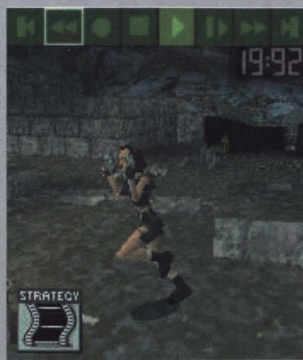
What is Airplay capable of at the moment?

Airplay can handle everything from turn-based to full real-time multiplayer gaming over GPRS and features the industry's most sophisticated wireless network latency mitigation system. Ideaworks3D was the first company to test real-time multiplayer wireless gaming with Motorola's mobile infrastructure division in the spring of 2000. Our tests left us absolutely horrified at the performance of GPRS from a gaming perspective. Worst case GPRS network latencies can run into seconds rather than milliseconds and the bandwidth available seldom achieves its theoretical maximum, which should compare well with a terrestrial dial-up modem connection. We've been working for several years to develop a technology solution that makes GPRS a bit zippier and more robust for the wireless game developers purposes.

What else does Airplay feature?

The ability to host leagues, competitions, match players, text chat, messaging, lobbies, security, etc. It also features a pretty nifty update system which allows the automatic updating and patching of ROM card-based games over the wireless network. This allows us to constantly add new features and episodes to our games long after their cartridges have shipped.

One of Airplay's sexiest technology extras is 'The Black Box Recorder', which allows players to record clips of their gameplay and send them to each other over the wireless network. Players can record both interactive and non-interactive game segments. Recorded interactive segments can be played back as 'shadows' or 'ghosts' in other people's games, allowing players to compete with each other's best performances.



Ideaworks3D's Black Box technology allows you to download strategy hints from N-Gage Arena. These become available at certain points in the game and show you a video of how to beat the relevant puzzle. You can also record your own achievements (just pause the game and enter the camera menu) and upload these to the Arena – great for when you discover a new way to complete a section, or just want to show off a cool move.

The version of Black Box implemented in *Tomb Raider* for N-Gage efficiently encodes and compresses Lara's mesh data and full skeletal animation system at a rate of around two bytes per frame. The information is then further decimated and re-encoded using our DERBH compression technology. This makes it possible to encode over 25 minutes of gameplay from a 3D console game, such as *Tomb Raider* in under one kilobyte, with typical minute-long clips weighing in at around 300 bytes. These incredible file sizes make the passing of Black Box recorded clips over even low bandwidth GPRS networks almost instantaneous.

A player can download a 10 minute clip (which might, for instance, show them how to perform a partic-

Airplay can handle everything from turn-based to real-time multiplayer gaming over GPRS and features the industry's most sophisticated wireless latency mitigation system.

ular trick in a game) in under half a second. The concept behind the Black Box technology was to create a system that could deliver 3G wireless network experiences over existing 2.5G networks.

Black Box's extreme bandwidth efficiency also makes it extremely cheap for players to compete with one another over the wireless network. GPRS data is still very expensive, with a typical cost per megabyte in Europe of around £2.50. One of the factors that it was feared might blight wireless gaming would be the high data cost of multiplayer gaming over GPRS. With Black Box, downloading and challenging a 'shadow' race clip should typically cost players less than a 30th of a penny.

It is the enabling technology and wireless gaming concepts of 'Play, share and compete' embodied in the Black-Box Recorder and Airplay technologies that form the core features of N-Gage's wireless gaming launch.

What will you achieve with Airplay in the future?

The first three titles that Ideaworks3D has developed for the N-Gage launch represent a pretty significant mile-

stone for the wireless gaming industry. They're the first truly console quality 3D, multi-user, connected games ever to appear on a mobile handset. Ideaworks3D has supplied virtually all the specialist software technology which make these games possible, from on-device multimedia and GPRS network protocols, through to wireless server technology, security and billing infrastructure.

All in all though, we've been pretty conservative about the Airplay feature set that we're rolling out for the launch. N-Gage and Airplay are both capable of much more than we're demonstrating at this early stage. Suffice to say wireless gaming is still in its infancy and as a technology of its time, that would suggest that Airplay too has a very long way to evolve yet.

Segundo3D is your game conversion tool – can you explain how it works?

The precise workings are, I'm afraid, shrouded in deep secrecy. I can give you a little bit of the technology's background though. Development on Segundo3D began three and half years ago. It was the result of a long term project at Ideaworks3D to create the ultimate tool for converting PC and console games to run at maximum performance on 'smart' mobile devices, set top boxes and various other consumer devices.

Segundo3D is able to convert PC and console games to mobile devices in a fraction of the time that it might otherwise take. At E3 in May, Activision and Ideaworks3D demonstrated a fully playable alpha version of *Tony Hawk's Pro Skater*, running at over 20fps on N-Gage using Segundo3D. The demo was created in just 18 days, by a single engineer using Segundo3D.

Aside from its highly advanced code morphing and migration tool chain, there are one or two other aspects of the technology that are worthy of mention. The first of these is Segundo3D's software rendering layer

LightSpace3D. This is a PC rendering technology co-developed by Ideaworks3D and Intel in 1999 and acknowledged as one of the world's fastest software rendering solutions. Segundo3D uses a highly evolved and mobile-specific version of this technology which delivers significantly higher performance than other 3D engines currently available on mobile devices.

And what about the DERBH encoding and compression engine, which is part of Segundo3D?

DERBH was developed to enable the compression of complex CD-ROM-based games for execution on storage-constrained mobile devices like N-Gage. To illustrate DERBH's performance advantages: the original size of the *Tomb Raider* PC game executable is 37Mb. Applying Zip or advanced Bzip compression reduces this to around 19Mb or 12Mb respectively. *Tomb Raider* for N-Gage ships on an 8Mb ROM card. This version of the game (which includes all 16 levels), compressed using DERBH consumes only 5.7MB. An additional bonus is that DERBH is also able to decompress and load levels of *Tomb Raider* using the N-Gage 104Mhz processor at a faster rate than the original PSOne console was able to load them uncompressed from its CD-ROM drive.

How much do PC games like *Tony Hawk's* have to be cut-down to fit on N-Gage?

I would say that on N-Gage, Segundo3D might allow you to get 90-95% of the original PC game experience without too much effort. As ever with things of this nature, squeezing the last crucial 5-10% of the original game's look, feel and playability onto the N-Gage is a process that requires skill, patience and sleight of hand.

Are you now looking into achieving multiplayer gaming over GPRS with N-Gage?

We've been working on GPRS multiplayer gaming for years. This is now the main focus of our work on N-Gage. We have full real-time networked games up and running and hope to debut these in the near future.

interview

Ilkka Raiskinen

As Senior Vice President of Nokia's entertainment and media division, Ilkka Raiskinen has become the voice of N-Gage during its hectic pre-launch build-up. So how did Nokia prepare to enter the videogame industry, and what are its plans for the future now it's there? We asked the man himself.

**How and why did N-Gage come about?**

We learned early on that games are valued by Nokia customers, and rank very highly on their criteria for new handsets. As soon as we started to play with Symbian we thought we might be able to build a games optimised device. Then three years ago, we decided that once we have Bluetooth and once the network is mature enough, that's the time to start work on that device.

We see boundaries between games and movies and entertainment in general becoming more and more blurred. Cross-media entertainment is a great opportunity

What were the major N-Gage design influences?

We have a very experienced design centre within Nokia and they follow all consumer goods industries – music gaming, etc – when they come up with any new device.

How did Nokia prepare to enter the game industry?

We've been researching games since the mid-nineties, using focus groups to investigate why and what people are playing, their motivation, etc. We also looked into the prices and performance of other hardware platforms.

And how did you approach the major videogame publishers? Were they immediately receptive?

We'd already had discussions with the big videogame publishers in the late-nineties and those were quite instrumental in the development of N-Gage. It gave us an understanding of how the industry works and how it is different from the telecoms industry. We found out a few critical elements, like the role of distribution – being able to distribute games as a physical medium. Those discussions were valuable and we're still learning.

How important was E3 2003 to N-Gage?

Very important. Before E3, we understood on a rational level how different the videogame industry is from the telecoms industry, but at the event, our engineers and marketing people were able to experience it on an emo-



Raiskinen believes that trade shows such as E3 and ECTS (left) have been vital in spreading the N-Gage message to publishers.

tional level and that gave them more insight. Also when we brought our partners from the telecoms industry, they were able to see that it's a totally different ballgame. And being able to articulate the unique factors of N-Gage at the show was very valuable.

Can you tell us about Nokia's in-house dev studio?

We're mainly relying on external studios at the moment.

Pathway to Glory is a whole new new kind of game, and as a project, we're using it to explore and ramp up certain technical aspects of N-Gage development.

What does Nokia think about Sony's recent announcements regarding the PSP handheld?

Nokia does not speculate on other company's products, but there will be a clear trend toward mobility over the next couple of years. Also, the game experience will no longer be just about games – it's a mobile entertainment experience and that's a target for a lot of companies, which is exciting. We're glad they're getting involved.

What do you think the key feature of N-Gage is?**What one element will really excite gamers?**

Definitely the online, wireless and multiplayer elements – the ones you can share with your friends. These transform gaming into a social experience.

The concept of 'Social gaming' seems to be an important one for Nokia...

Yes, this will attract new types of players, so we'll be expanding the target group. Games are becoming more social; we see boundaries between games and movies and entertainment in general becoming more and more blurred. Cross-media entertainment is a great opportunity – we're discussing it with a lot of companies.

N-Gage: the games

However impressive the hardware, every videogame console launch lives and dies by its games. Nokia clearly understands this. Over the last year or so, the company has been busy recruiting top videogame publishers to the N-Gage platform, resulting in an impressive launch line-up of up to ten titles, to be followed later in the year by ten more games.

The actual October 7th line-up has not been finalised yet, but every game announced so far is previewed over the forthcoming pages, with *Tomb Raider*, *Pandemonium* and *Tony Hawk's Pro Skater* known to be among them. It's a strong, varied collection, taking in all the major genres. As with most modern hardware launches, there is a reliance on well-known brands; it's the safest way to attract attention. Importantly, many of these franchises have been tweaked for N-Gage, with added Bluetooth and N-Gage Arena modes, bringing across the social element so important to Nokia's concept of the mobile gaming platform. The link-up cable is finished, tossed on the peripherals trash heap. Bluetooth and GPRS connectivity are the fresh new alternatives. There's no going back. And these games are where you'll first find that out.



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Tomb Raider

Publisher: Eidos Developer: Ideaworks3D/Core Design

The delectable Lara Croft is no stranger to handheld consoles – various versions of *Tomb Raider* have appeared for the Game Boy Advance, but all are conspicuously 2D, and seen from an isometric perspective. Which means that one of the best ways in which N-Gage owners will be able to impress their friends is to treat them to a demo of this game, which, boasts three glorious dimensions.

Compromises are stunningly absent. There are 16 levels, taking in South America, Greece, Egypt and Atlantis, a classic storyline in which Lara seeks the Scion, an ancient relic, and all the jumping, climbing, swimming and shooting action you could ask for. The control system is unimpeachable – all Lara's moves have been mapped to the numeric keypad. Naturally, the game employs that third-person perspective which *Tomb Raider* fans crave, and proper texturing. Which is impressive enough, but the icing on the cake is the existence of the assault course. When you have completed that, you can upload your best effort to the site, at which point your N-Gage-owning mates can download it and compete against a ghost image of your effort. Now, *Tomb Raider*, as everybody knows, has always been a single-player game. Not any more, it seems.

Multiplayer

***Tomb Raider* supports a range of N-Gage Arena options...**

Shadow Race

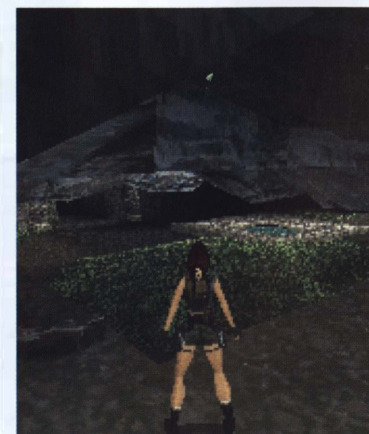
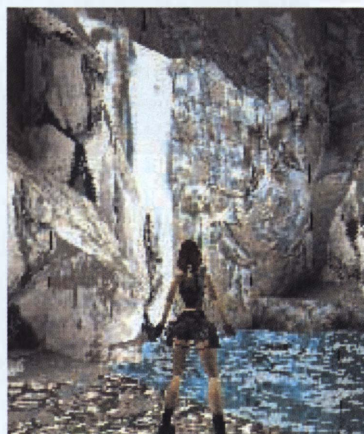
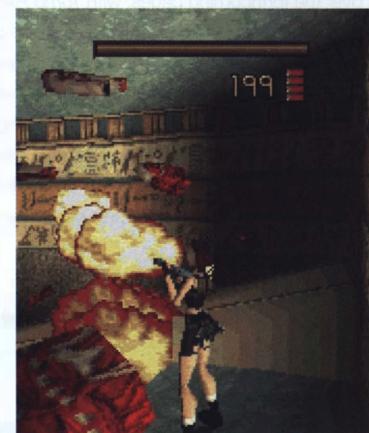
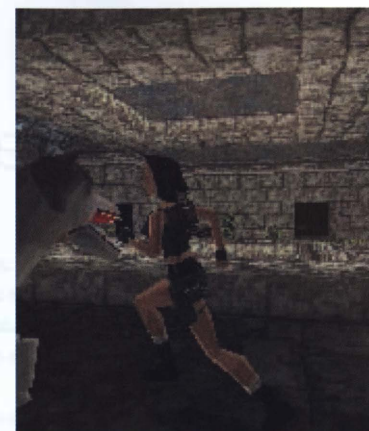
Working like a driving game ghost racing mode, this lets you attempt a timed assault course against any N-Gage owner who's posted their effort online. Simply select N-Gage Arena on the main menu, choose 'shadow race', then peruse the highscore table showing times left by other players. Pick one you think you can beat (failing to better the selected time costs you points), and then wait a few seconds while you download the Lara animation from your opponent's timed run. (The file is under 1Kb in size.) When the challenge kicks off you see a skeletal Lara representing the performance you're competing against. Beat her and you move up the table. You'll also be able to send taunts to players whose score you've beaten, allowing them to reclaim their chart position with another attempt. Ideaworks3D can turn any level of the game into an assault course and will use a new one every few weeks to keep the challenge fresh.

Strategy Guide

This ingenious feature uses Ideaworks3D's Black Box technology, which allows ten seconds of game footage to be recorded and/or played within the game. Ideaworks has used this to record solutions to every tricky part of *Tomb Raider*. When you reach one, an icon appears letting you know there's a hint on N-Gage Arena. Go online, choose a solution then download the footage.

Director's Cut

Here you can record your own game footage, so if you do something cool like somersault backwards and shoot a wolf, simply pause the game and save the last few seconds of action. Then upload it the the Arena for all to gawp at.



The N-Gage *Tomb Raider* is an exact replica of the PSone original, with loads of new game modes.

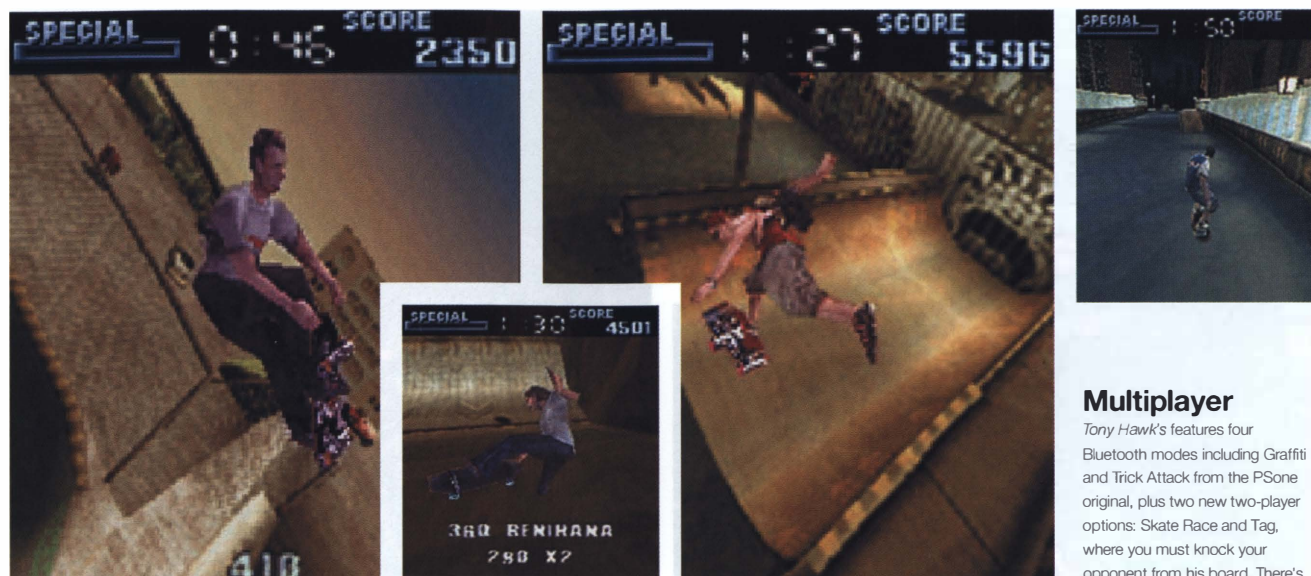
Tony Hawk's Pro Skater

Publisher: Activision Developer: Neversoft/Ideaworks3d

At last, the full 3D *Tony Hawk's Pro Skater* experience – complete with those trademark swoopy camera angles – has been shoe-horned into a handheld machine. Which is a pretty impressive sight – we would be surprised if this was not the best-selling N-Gage game. What you get is a faithful version of the first *Tony Hawk's Pro Skater*; as well as several bonus levels from the sequel. The courses are familiar and all Tony's signature tricks and flips are present and correct. The control system makes heavy use of the numeric keypad – the '5' key launches an ollie, '4' and '6' plus directional input launch flips and grabs, and '2' lets you grind.

With the ability to go head-to-head against a mate via Bluetooth, as well as all sorts of interesting goodies over GPRS (see box on right), N-Gage's communications abilities should add some new dimensions to the THPS experience. Even the N-Gage's portrait-shape screen – which has received some criticism – seems peculiarly well suited to the game, as it allows tighter camera angles when you generate some big air. Oh and fans of the series' familiar skatepunk soundtrack will be pleased to note that it receives a very decent conversion.

Tony Hawk's Pro Skater is, without a doubt, the most impressive game for N-Gage. Hop aboard as soon as you can.



The game maintains an impressive 25 frames per second, despite the complex 3D visuals.

Multiplayer

Tony Hawk's features four Bluetooth modes including Graffiti and Trick Attack from the PSone original, plus two new two-player options: Skate Race and Tag, where you must knock your opponent from his board. There's also N-Gage Arena support with a 'shadow race' assault course, downloadable skating tips and a Player's Clips page where you can post video segments of your most 'gnarly' stunts for all to see.

Pandemonium

Publisher: Eidos Developer: Crystal Dynamics/Ideaworks3D

Whimsical humour is the order of the day for Eidos' 3D side-scrolling (although the way the perspective cleverly shifts around corners at regular intervals means that it feels more 3D than side-scrolling) 3D platform game, starring the rather nubile wizard Nikki and her madcap sidekicks Fargus and Sid. A substantial amount of work has been put into the N-gage version of the game, in particular emphasising the vertical jumping elements to suit the portrait-aspect screen. There are also some nice 3D landscape techniques adding depth to the generously long playing field.

As with the original console version, surreal touches abound, in both the level and character design. The N-Gage version boasts a generous 11 levels. Plus, it lets you play against a friend via Bluetooth or compete against other peoples' time trial data on N-Gage Arena. You'll also be able to go online and download cheats such as new weapons and flight spells – great if you're stuck on that tricky jumping puzzle and have to progress before your train pulls into the station.

Pandemonium is graphically impressive, often amusing, full of character and one of the games that are just as likely to appeal to women as to men. Even if you finished it on PSone, the new multiplayer modes are certainly worth a look. Another potential success story for N-Gage, then.



The camera pans smoothly around the character, adding a 3D feel to the essentially 2D action.

Multiplayer

As with all of Ideaworks3D's conversions, the game features full support for N-Gage Arena, including downloadable hints and cheats, and a Time Attack assault course. It also has three nicely varied multiplayer Bluetooth modes: Grab 'n' Run (a race to pick up the most power-ups on the way to a series of checkpoints), Just Race and Co-op, where Nikki and Fargus team up to complete the level together, sharing power-ups and treasure.



Red Faction

Publisher: THQ Wireless Developer: Monkeystone



Genuine 3D fps thrills on a mobile device. Plus, Monkeystone has provided a four-player mode.

THQ's first-person shoot-em-up *Red Faction* may not have set the console world alight, but it has made an impressive transition to N-Gage. Developed by ex-id Software/Ion Storm veteran John Romero's new outfit, Monkeystone, it offers 12 levels and a power-to-the-workers storyline, set on Mars, which remains true to the original console game.

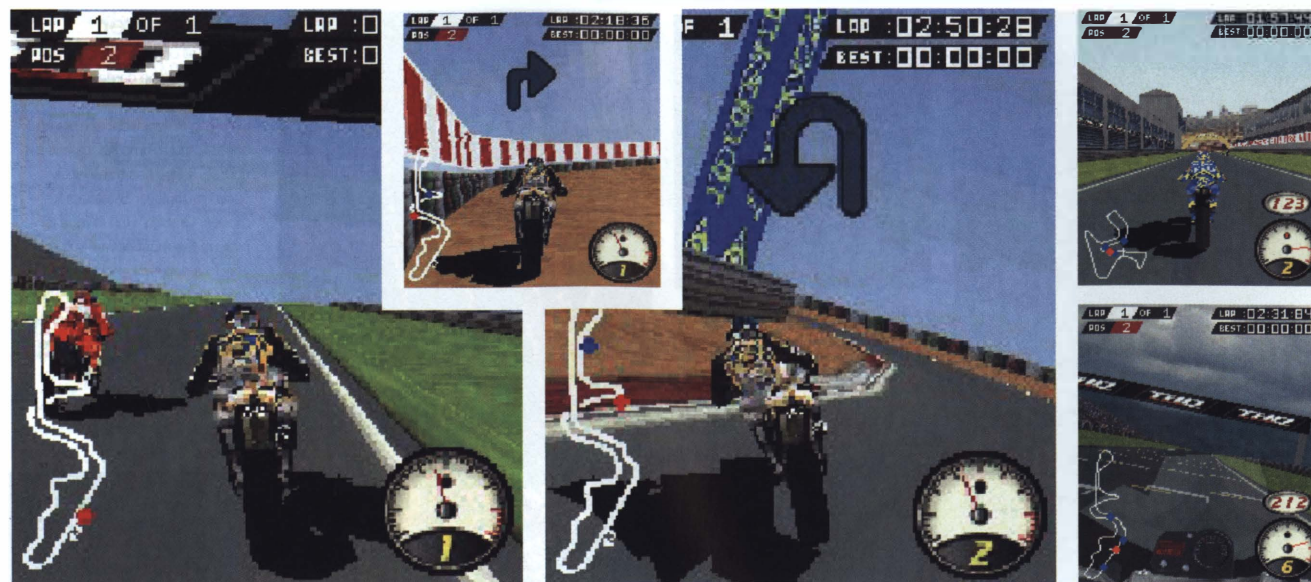
What you get is no-nonsense 3D first-person shooter action, which mainly involves running from room to room, picking up weapons, ammo and power-ups, and blasting monsters and bosses. In a console context, that would be utterly unremarkable, but witnessing an uncompromised 3D fps on a handheld borders on the revelatory.

Perhaps the game's greatest strength is that it lets up to four people play Deathmatches and Capture The Flag tournaments via Bluetooth. The control system, which makes extensive use of the numeric keys, can be mastered quickly (thanks to an exemplary tutorial) and, to emphasise that *Red Faction* has not been emasculated by its move to N-Gage, you even get to drive various vehicles.

As with the original game, conserving ammunition is a major concern, and the single-player mode will keep you occupied for a decent amount of time. But it is *Red Faction's* ability to provide a wireless multi-player experience that will primarily earn it a fan base.

MotoGP

Publisher: THQ Wireless Developer: In-house



MotoGP provides a surprisingly tactical simulation of motorcycle racing, with plenty of game modes.

This motorbike racing licence proved a hit on Xbox where its online multiplayer mode was one of the key early Xbox Live experiences. THQ Wireless is no doubt hoping to repeat that success with this N-Gage version, boasting a four-player Bluetooth mode that provides a smooth showcase for the technology. This is an impressive little racer with firm handling and a decent challenge level. Cornering is all about slowing way before the turns and getting into exactly the right angle to hit the racing line, without clipping the edges of the track. A mini-approximation of the real thing.

There are 15 real-life competitors and six bikes to open up and try out, including the Yamaha YZR500, Suzuki GSV-R and Honda NSR500. To complete the air of authenticity, there are well-known circuits such as Suzuka, Jerez and Le Mans to zoom round. You also get a great track editor allowing you to create and save up to three custom courses. Perhaps the next version will let you post these on N-Gage Arena? It would be a fun feature, and a real community builder (just look at the massive mod scene in PC gaming, of course).

For now though, *MotoGP* is well presented and exciting. It'll certainly appease driving fans who don't expect the full Xbox experience. And later, of course, we'll get to compare it to *Sega Rally*.

Virtua Tennis

Publisher: Sega Developer: Hitmaker

Any sports mad gamer will tell you that Sega's *Virtua Tennis* is the best tennis game ever.

Despite a simple two-button control system, it somehow contrived to let you play some seriously flashy shots, and was gloriously responsive.

The N-Gage version of the game is very much a port, eschewing three dimensions in favour of a two and a three-quarters top-down perspective. But although it makes no use of the N-Gage's 3D processing, it is still supremely, and instantly, playable.

The two-button control system (normal shot and lob, modified by the directional pad) is laughably easy to get to grips with, and two gameplay modes (Arcade, which provides quick and easy games, plus World Circuit, in which you rise through the ranks on grass, clay and hard courts) add up to a decent amount of gameplay.

But *Virtua Tennis*' biggest strength is its Bluetooth multiplayer support – up to four people can compete against each other (at doubles, naturally, if there are four of you), and that is bound to be a hit. This is one of those classic games that you can dip into for 15 minutes while the boss isn't watching, or while you're waiting for your date to show up. And the chances are, if they catch you at it, they'll fancy a quick two-player as well. Another great addition to the N-Gage sports line-up.



The visuals aren't quite 3D, but the gameplay experience captures the feel of the original.

Super Monkey Ball

Publisher: Sega Developer: Amusement Vision

Who'd have thought that guiding a primate trapped inside a clear plastic ball around a series of fiendish courses would provide such a compelling gameplay experience? Sega, of course. *Super Monkey Ball*'s ultra-pure gameplay (outside of the mini-games, you need only manipulate the direction pad) ought to suit N-Gage, and that, happily, proves to be the case. Polygons, textures and high frame-rates (thankfully, when you consider that the first Alpha versions of the game demonstrated frame-rate issues) add up to a visual experience which, worryingly for Nintendo, is not far behind the one offered by the GameCube version.

Squeezing *Super Monkey Ball* onto a tiny cartridge does not seem to have been a process which involved any significant compromises. Three of the familiar mini-games can be opened as you progress through the game: Monkey Fight, Monkey Race and, joy of joys, the awesome Monkey Target (which, *Super Monkey Ball* fanatics will recall, was cruelly omitted from *Monkey Ball Junior* on the GBA).

It is a shame that there is no two-player Monkey Target action on offer (an innovation introduced by *Super Monkey Ball 2*). Indeed, *Super Monkey Ball* is a single-player only game. But the presence of Monkey Target (making its first appearance on a handheld), makes up for that in our opinion.



The world's cutest game makes its perfectly-judged way to N-Gage. Monkey magic.

SonicN

Publisher: Sega Developer: Sonic Team



Small but perfectly formed, Sonic provides a heady retro shot for platform freaks.

It may seem a bit odd to release a 2D game for the first handheld console that can run games in 3D. But think about it: Sonic has never been the same since Sega, unconvincingly, gave the blue hedgehog a third dimension for the *Sonic Adventure* games on Dreamcast.

In this case, what you get is classic, 16-bit style *Sonic The Hedgehog* action, which means some of the fastest side-scrolling platform gameplay ever. Those who are old enough to remember the Mega Drive will find *SonicN* extraordinarily familiar (and, disappointingly, there are no Bluetooth multiplayer or GPRS download levels to offer anything new), but then a whole generation exists which has never heard of the Mega Drive. The plot, involving Dr Eggman, is faithful to the original game, and, naturally, you get to play as Amy, Knuckles and Tails, each boasting their own unique abilities, so you'll get a different challenge with each character you play as. There are five zones to rush through, each split into two acts, and using the '5' key to jump and '7' for other special moves provides a logical and intuitive means of negotiating the colourful chaos.

A museum piece, for sure, but Sonic's sheer speed, and the gameplay's simplicity and purity means that it has not dated as much as you might expect. The hedgehog is well and truly back.

Tom Clancy's Splinter Cell / Team Stealth Action

Publisher: Gameloft Developer: In-house



It's inspired by the console hit, rather than being a faithful adaptation, but is no less fun for it.

This is a really intriguing idea. Earlier this year, Gameloft produced a cute, and very successful, 2D platformer for Java phones, based on the *Splinter Cell* licence. The company has now taken that look and feel and applied them to an expanded N-Gage version, with massively improved visuals.

But the really interesting part is the Bluetooth two-player co-op mode. As 3rd Echelon agents of the Shadownet Team, you and a friend will be able to take on 15 stealth missions, infiltrating a range of terrorist strongholds. Puzzles rely on various co-op tactics – sometimes one agent has to go ahead to operate an elevator for the other, or an agent may have to help his partner climb high obstacles. Some doors also require both agents to deactivate the lock. It's a fantastic idea, embracing the spirit of Bluetooth gaming – intimate and highly social, as opposed to the faceless thrills of online combat.

Mission locations take in familiar stealth favourites, such as submarine ports, oil refineries and CIA buildings. You also get a generous tool kit of cool gadgets, including thermal and night vision goggles, grenades and sticky cameras that can be placed on walls to monitor enemies. Importantly, there's also a nine-mission solo play option for agents that prefer to work alone. But, ultimately, this is a portable multiplayer experience you really have to try.

Rayman 3

Publisher: Gameloft Developer: In-house



There are 50 maps and eight different environments to play through, each rich with detail.

Everyone loved Gameloft's remarkably pretty Java version of the Ubi Soft platform sequel, which seemed to usher in a new era of visually rich mobile gaming. Well, predictably, the N-Gage version takes that to another dimension providing 50 levels spread over eight graphical diverse – and rather gorgeous – environments, complete with animated backgrounds and around 20 in-game characters.

Single player-wise, this is familiar *Rayman* stuff, taking us back to the series' 2D roots, but providing lots of more modern gameplay ideas recalling the recent GBA version. Two boss maps, special challenges and bonus maps add to the challenge and veterans will welcome back the helicopter move as well as a super power double fistfight action. Sounds very painful.

As with this developer's *Splinter Cell* conversion, though, the real pull is the Bluetooth multiplayer mode. Or rather 'modes', since *Rayman 3* offers Capture the Flag, Tag and Burglar options for up to four players, who can take part either in teams or in everyone-for-themselves skirmishes.

Gameloft has shown real effort and care here, both in trying to get the absolute most out of a new technology, and also in bringing something fresh out of a classic game brand. *Rayman 3* is certain to prove an essential component of N-Gage's more than healthy platformer line-up.

Taito Memories

Publisher: Taito Developer: Taito

Ah, sweet memories, indeed. Taito has rifled through its copious back catalogue and emerged with three absolute gems. First up is *Super Space Invaders*, a new version of the coin-op classic (perhaps most closely based on the *Super Space Invaders '91* incarnation) and still a compelling blast to those who spent their youth hanging out in chip shops and cafes, pockets straining with ten pence pieces. All of us, then.

Qix is the 1981 arcade puzzler that requires you to box off areas of the screen without being touched by various patrolling enemies in the process. This one should be familiar to all comers as it's been ripped off thousands of times by shareware companies the world over. Believe us, it's a deceptively compelling challenge, and always one you can return to.

Finally, you get a conversion of the fabulous 1986 veteran *Bubble Bobble* – an oft-overlooked (by mainstream casuals) platforming peer of *Mario* and his ilk. The idea is simply to control the cute dinosaur around a long series of screens, blowing bubbles in which to trap enemies. It appears that this is a one-player version of the originally two-player co-op game, but we'll make do. If this collection is released at the right price it'll be an essential piece of retro fun. May we suggest *Chase HQ*, *New Zealand Story* and *Operation Wolf* for future releases?



The simple delights of Taito's back catalogue make perfect mobile gaming fodder.

Puyo Pop

Publisher: Sega Developer: In-house

Sega has ported Compile's cute little *Tetris*-like to so many platforms now, it's possibly even more ubiquitous than the Russian legend that inspired it. The gameplay is certainly as simple; differently coloured animated beans – or puyos – fall from the top of the screen in groups of two, which you can re-arrange as they're falling. Organise them into rows of the same colour and they disappear. To increase the score, it's possible to pull off combos and chains (different methods of getting more than four to line up at once), and once you get to that level of skill, planning ahead, by looking in the 'Next' window in the centre of the screen, becomes obligatory. The object, of course, is to keep the pile from reaching the ceiling.

It is, of course, hugely addictive stuff, especially in the two-player Bluetooth mode. Here, friends can compete against each other, sending nasty Ojama (or 'junk') puyos to the other's screen, ruining any chain or combo plans. And without the constraints of the link-up cable, this sort of easy head-to-head fun is going to be a lot more versatile and accessible.

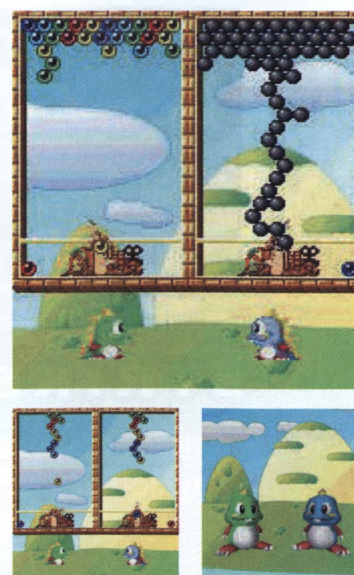
Boasting those delicious kawaii visuals and four game modes, *Puyo Pop* will provide an attractive and long-lasting counterpoint to the edgier likes of *Tomb Raider* and *Tony Hawk's*. And if it's a success, there have been plenty of variations on the theme for Sega to port across next...



Classic two-player fun from the *Tetris* school of combined depth and simplicity...

Puzzle Bobble VS

Publisher: Taito Developer: In-house



...And here's some more. Falling object fans will not be disappointed by N-Gage.

Even more than Sega's *Puyo Puyo* titles, a *Puzzle Bobble* conversion is seemingly a legal requirement for any new videogame platform. You're never sure what incarnation might turn up on your latest videogame hardware purchase (later sequels have added new twists to the basic gameplay), but this appears to be the good old vanilla version, with some new multiplayer twists.

In the unlikely event that you've never encountered it, the game involves firing coloured bubbles to the top of the screen, attempting to cluster at least three together to make them fall away. If the screen fills up, it's game over. Of course, it's a lot more complicated than that, with skillful wall ricochets and tactical colour positioning coming into play, but you know this.

As you'd expect, *Puzzle Bobble VS* features Bluetooth support, allowing up to four players to take part in competitive matches where any bubbles you pop appear on your opponents' screens. We're not quite sure how this will work with four, as *Puzzle Bobble* has been traditionally restricted to just two participants. We're willing to find out, though.

There's also a new two-player 'Avec' mode that requires just one handset. Sounds intriguing, and it's something that veterans of the series won't have tried before. Clearly Nokia is determined to deliver its 'social gaming' dream in as many forms as possible. As usual, *Puzzle Bobble VS* is essential stuff.

Marcel Desailly Pro Soccer

Publisher: Gameloft Developer: In-house



Depth? Two-player action? Could this be the mobile footy sim we've all been waiting for?

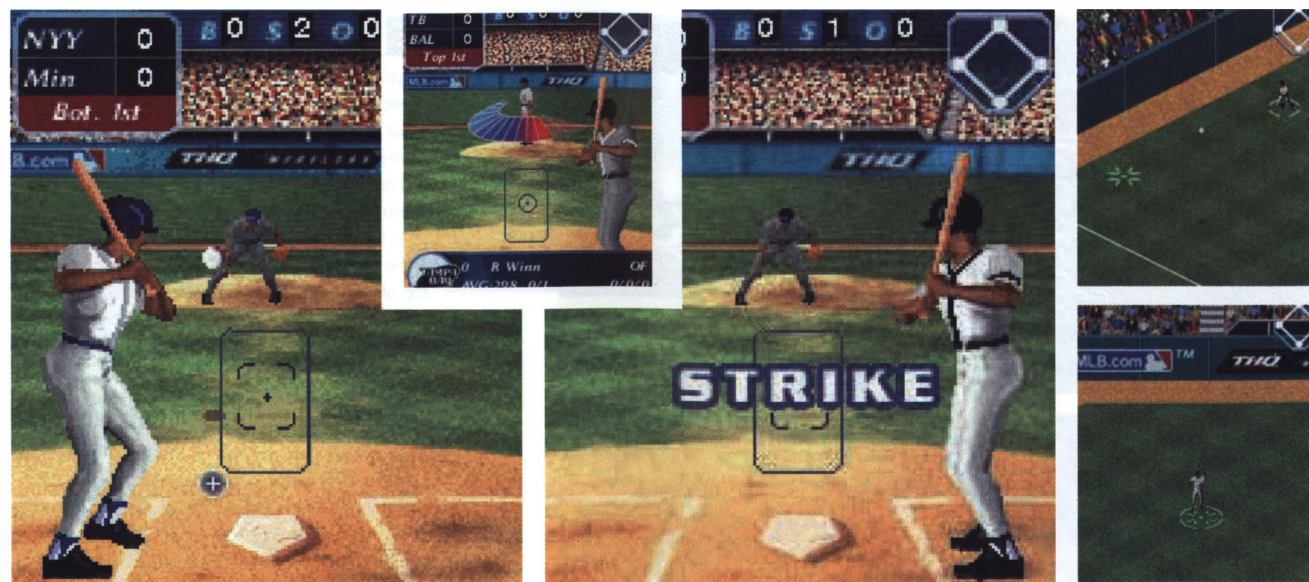
The world has been waiting a long time for a mobile soccer sim of real playability and depth. And this could well be it. Apparently, 'pushing the animation potential of N-Gage to new limits', *Marcel Desailly Pro Soccer* is, by the looks of things, a true simulation put together by a bunch of real footy fans. You get proper individual skills and attributes for each player, an AI system that adapts to your style of play, and a range of moves including sprinting, and long, manual and short passing – plenty there to add variety to the gameplay (no through ball, but perhaps the manual pass fulfils that function, or even shoot which has a powerbar chargeable by holding down the '7' button).

The mode and team selections seem impressive too. You get 32 national teams and 32 top European clubs to choose from, along with a range of cup competitions, and the development team reckons it has captured each side's recognised tactical style – another great bonus. The game was shown at ECTS and although running slow (it was pre-alpha), the player movement was convincing, and the passing slick and highly controllable.

Add to all this an absolutely essential two-player Bluetooth mode and you have what's shaping up to be a required purchase for *Pro Evolution* obsessives on the move.

MLB Slam!

Publisher: THQ Wireless Developer: Hexacto



Every aspect of the sport is replicated as closely as possible, keeping instant playability in mind.

While European gamers will have their sporting needs fulfilled by *Marcel Desailly Pro Soccer*, Americans will obviously need something with a lot more stats. Enter *MLB Slam!* an accurate baseball sim offering full nine-innings games and an impressive roster of 30 official Major League Baseball teams. True aficionados will also have the option to build their own dream sides (a feature we'd like to see in any future footy titles as well, please).

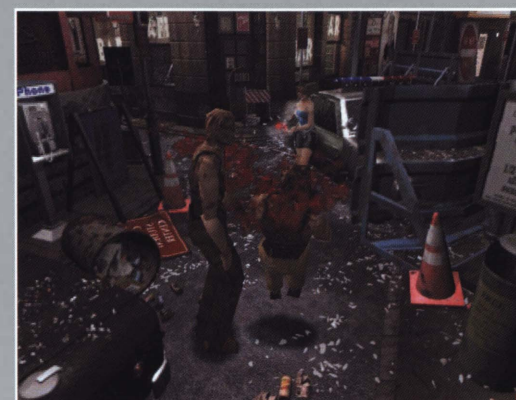
Gameplay is accessible enough for non-experts, but still retains depth. The pitcher has a choice of throws, including fastball, curveball, sinker, etc (the selection is dependent on the real-life specialties of the pitcher you're controlling), while the batter can go for normal, bunt, or power swing – the latter reducing the size of the aim meter, which of course adds to the risk of fluffing the hit.

There are six modes of play: Quick Match, Full Season, Spring Training, Two Player, World Series and Home Run Derby. The latter gives you ten chances to hit the ball out of the park in a simulation of the real-life big-hitting tournament. Surely, there's enough in here to keep fans contended for a while.

The visuals are neat and smooth, and the two player Bluetooth mode makes the whole prospect that much more attractive for us footy-obsessed Euro gamers. Decent American Football and basketball sims will probably follow.



With EA coming to N-Gage, major brands like *Tiger Woods* (left) and *FIFA 2004* (above) won't be far behind. Nokia is sure to be talking to Japanese giants like Namco and Capcom too, so don't be surprised to see the likes of *Resident Evil* (right) and *Ridge Racer* (right, bottom) on N-Gage one day...



N-Gage: the future

A great line-up of launch games is a vitally important start, but what comes next for N-Gage? Does 2004 have any big surprises in store?

With up to ten titles promised for October 7th and another ten arriving before Christmas, early N-Gage adopters won't exactly be short of games over the coming months. But it's in the gamer's genes to look forward, to keep one eye on the distant horizon - and there have been some scintillating clues as to what we can expect next year.

During Nokia's E3 press briefing, for example, the company let slip that it had set up its own internal development studio in Finland. The team is currently working on one announced project, *Pathway to Glory*, a multiplayer action strategy title set in World War II. There are few details

Sports and EA Games stables. This is a massive bonus for the game deck and a key indication that it's being taken seriously in the videogame industry. Again, details are sketchy. EA has not yet revealed what its N-Gage titles are, or whether they are being developed in-house or farmed out to mobile developers. So far the company has been happy to keep its distance from the mobile sector, selling key franchises to wireless entertainment publishers like Digital Bridges (*FIFA 2003*) and Jamdat (*Tiger Woods PGA Tour Golf*), who have produced Java and BREW conversions. N-Gage, however, represents a much more familiar business model - games produced on physical media and sold through retail chains, rather than downloaded from web portals. This may prompt the company to get more involved.

Whatever EA decides, there are other treats to look forward to. Sega has promised an N-Gage conversion of its

All the current supporters of N-Gage have unannounced projects in the pipeline - most exploring the possibilities of online gaming. *Pathway to Glory* won't be the only original multiplayer title...

presently, but it's clear we're not talking about just two or even four simultaneous players here - Nokia seems to have something more ambitious planned. Whether or not this involves real-time or turn-based gaming, we'll have to see. A tentative launch date of Spring 2004 has been mentioned.

More recently, Nokia announced that EA would be supporting N-Gage, bringing over familiar brands from its EA

classic arcade driving game *Sega Rally*, due later this year. As Sonic Team took direct charge of *SonicN*, we can only hope that Tetsuya Mizuguchi will at least have a hand in this translation. And then Gameloft (a talented and respected mobile developer, allied closely to Ubi Soft) is finishing its first 3D mobile gaming project, *Ghost Recon*. The dev team is promising a very close port of the original console FPS,

complete with a Bluetooth multiplayer mode.

As for other developers, Nokia is surely talking to Namco and Capcom who have a presence in Japanese mobile gaming (there are excellent J-Phone conversions of *Ridge Racer* and *Biohazard*). Plus, all the current supporters of N-Gage have unannounced projects in the pipeline - most exploring the possibilities of online gaming. Put it this way: *Pathway to Glory* won't be the only original multiplayer title on N-Gage next year. Once you've played through the launch line-up, you will be taken into unknown territory...

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